



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,150	12/10/2003	Chih Yuan Huang	11064-US-PA	4810
31561 7590 10/20/2008 JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE 7 FLOOR-1, NO. 100 ROOSEVELT ROAD, SECTION 2 TAIPEI, 100 TAIWAN				
EXAMINER				
MARKOFF, ALEXANDER				
ART UNIT		PAPER NUMBER		
1792				
NOTIFICATION DATE		DELIVERY MODE		
10/20/2008		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USA@JCIPGROUP.COM.TW

Belinda@JCIPGROUP.COM.TW

# Office Action Summary

**Application No.**

10/731,150

**Applicant(s)**

HUANG ET AL.

**Examiner**

Alexander Markoff

**Art Unit**

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 7-8 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The applicants amended the claims to recite proportions of the components, which are not supported by the original disclosure.

***Response to Amendment***

3. The amendment filed 6/26/08 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: The applicants amended the claims (including the non elected claims 9 and 10) and the specification to recite proportions of the components, which are not supported by the original disclosure.

Applicant is required to cancel the new matter in the reply to this Office Action.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1-8 and 12-13 rejected under 35 U.S.C. 103(a) as being unpatentable over the state of the prior art admitted by the applicants in the specification in view of

Verhaverbeke et al (US 2003/0045098) and Verhaverbeke et al (US Patent NO 6,491,763) further in view of Chang (US 2002/0020432).

The admitted prior art (Background of the Invention, pages 1 and 2) teaches that the claimed method except for the step of cleaning the wafer with ozonated water prior to the RCA cleaning steps.

However, the use of ozonated water to remove organic contamination prior to the RCA cleaning was known in the art as evidenced by Verhaverbeke et al (US 2003/0045098) and Verhaverbeke et al (US Patent NO 6,491,763). See at least Background of the Invention in US Patent NO 6,491,763 and part [0059] in US 2003/0045098.

It would have been obvious to an ordinary artisan at the time the invention was made to include an ozonated water cleaning step prior to the conventional RCA cleaning disclosed by the admitted prior art with reasonable expectation of success in order to enhance the process because Verhaverbeke et al (US 2003/0045098) and Verhaverbeke et al (US Patent NO 6,491,763) teaches such as known to remove organic contamination.

With respect to claims 12 and 13 Verhaverbeke et al (US 2003/0045098) and Verhaverbeke et al (US Patent NO 6,491,763) do not disclose specifically claimed concentrations of ozone, but it would have been obvious to an ordinary artisan to find an optimum concentration of the active component by routine experimentation in order to enhance the process.

The admitted prior art modified by the teachings Verhaverbeke et al (US 2003/0045098) and Verhaverbeke et al (US Patent NO 6,491,763) does not teach the second solution comprising an ozonated water. However, Chang teaches that such step was conventional in the cleaning of the gate oxide structures with RCA chemicals. See at least parts [0005-0006].

It would have been obvious to an ordinary artisan at the time the invention was made to include the ozonated water step in the modified method of the admitted prior art after cleaning with RCA with reasonable expectation of success because Chang recommends such.

#### ***Response to Arguments***

8. Applicant's arguments filed 6/26/08 have been fully considered but they are not persuasive.

The applicants state that they made the amendment to correct typographical errors. The applicants state that they substituted "to" with "with".

The examiner disagrees.

First, there is no "with" in claims 7-10 now.

Second, it was no "to" in the rejected claims prior to the amendment.

Third, the amendment made to the claims and the specification is not supported by the original disclosure.

The applicants are trying to introduce new proportions by calling the previously disclosed and claimed proportions a typographical mistake. This is not persuasive.

It is noted that the previously recited and claimed proportions were presented in the specification and in the claims. In the other words the referenced subject matter was presented in multiple places of the original disclosure.

It is also noted that all co-inventors have signed a Declaration, which states that they have reviewed and understand the content of the specification, including the claims.

With the respect to the art rejection the applicants argue that the claimed invention does not require all the solutions used in the RCA cleaning.

This is not persuasive because the claims are written using "comprising". Thus the claims do not exclude any other processing steps.

The applicants further argue that the solutions recited by claim 1 are not the same as the solutions of the conventional RCA cleaning.

The applicants failed to provide any factual support to the referenced argument.

It appears that the applicants' argument contradicts to their own specification.

This is because the specification clearly states that the H<sub>2</sub>O:H<sub>2</sub>O<sub>2</sub>:NH<sub>4</sub>OH and H<sub>2</sub>O:H<sub>2</sub>O<sub>2</sub>:HCl are conventional solutions of the RCA cleaning, which are known in the art as SC1 and SC2. It is noted that the applicants elected the specie of H<sub>2</sub>O:H<sub>2</sub>O<sub>2</sub>:NH<sub>4</sub>OH, which is the SC1 solution of the RCA cleaning

### ***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Markoff whose telephone number is 571-272-1304. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Alexander Markoff  
Primary Examiner  
Art Unit 1792

/Alexander Markoff/  
Primary Examiner, Art Unit 1792